

Office Action Summary

Application No.

10/525,418

Applicant(s)

KELLY ET AL.

Examiner

JOHN K. KIM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2008.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
4a) Of the above claim(s) 12-21 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-11 and 22-24 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 23 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/003)
Paper No(s)/Mail Date 2/23/2005
4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 20080206
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Election was made without traverse as shown on the interview summary made on 7/9/2008. Claims 12-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim.

Drawings

2. The drawings are objected to because following minor informalities.
- In Figs. 1 through 5, some characters and elements inside the figure are not recognizable. Especially, Fig.3 in page 2/2 is not readable at all. As a result, it is hard to interpret specification and claims. See attached PTO form 948.
 - Fig. 3 appears two times. Fig. 4 is not shown. One of Fig.3 in page 1/2 might be Fig. 4.
3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

Claim 9 mentions a means for communication utilizes a wire-less (free of wire connection) form of communication. Drawings submitted are not showing such wireless communication. These items must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 6, 8 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Shomo (US 6196071, IDS).

As for claim 1, Shomo teaches (in Figs. 1-3) a torque transducer assembly (31) comprising: a housing (33, 65) having an opening (43 and inside of 67) therethrough; a torque transmission shaft (45) extending in said opening (43 and inside of 67) and rotatable about an axis (A) extending through said opening (43 and inside of 67), said shaft having respective end portions (47) accessible from exteriorly of said housing; a torque transducer element (51) integral with, or carried by, said shaft to emanate a magnetic field dependent on the torque in the shaft; a magnetic field sensor arrangement (61) located within said housing adjacent said element (51) for sensing the torque-dependent field, said sensor arrangement (61) being operable to provide a torque-dependent signal; and means for communicating (75) said torque-dependent signal to a signal externally of the assembly (81).

As for claim 2, Shomo teach the claimed invention as applied to claim 1 above. Shomo further teaches (in Figs. 1-3) one end portion of said shaft (45) projects exteriorly of said housing (65) and provides an output portion of the shaft (47).

As for claim 3, Shomo teach the claimed invention as applied to claim 1 above. Shomo further teaches (in Figs. 1-3) said housing (33, 65) is configured to enable it to be secured against rotation.

As for claim 6, Shomo teach the claimed invention as applied to claim 1 above. Shomo further teaches (in Figs. 1-3) said magnetic field sensor arrangement (61) comprises at least one magnetic field sensor device (Hall effect sensor). (col. 3, line 28-40)

As for claim 8, Shomo teach the claimed invention as applied to claim 1 above. Shomo further teaches (in Figs. 1-3) a signal processing unit (81) in communication with said torque transducer assembly (31) for processing said torque-dependent signals, wherein said signal processing unit (81) is operable to process pulse signals representing pulses of torque and is responsive to the amplitude of each pulse signal with reference to the quiescent signal level on which it is imposed. (col.3, line 28-40; col. 4, line 5-18, and inherent capability of linear Hall effect IC)

As for claim 10, Shomo teach the claimed invention as applied to claim 8 above. Shomo further teaches (in Figs. 1-3) a signal processing unit (81) connected to said means for communication by an electrical cable (75), said signal processing unit comprising a circuit (inherent) into which the magnetic field sensor (61) is connected through the cable (75), the circuit being operable to output signals representing sensed torque. (col.3, line 28-40; col. 4, line 5-18, and inherent capability of linear Hall effect IC)

As for claim 11, Shomo teach the claimed invention as applied to claim 10 above. Shomo further teaches (in Figs. 1-3) the signal processing unit (81) is operable to

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process pulse signals (of 61) representing pulses of torque and is responsive to the amplitude of each pulse signal with reference to the quiescent level on which it is imposed. (col.3, line 28-40; col. 4, line 5-18, and inherent capability of linear Hall effect IC)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shomo (US 6196071, IDS) in view of Schoeps (US 6134973).

As for claim 4, Shomo teaches the claimed invention as applied to claim 3 above. Shomo further teaches (in Figs. 1-3) a member (67) having a first portion (37) engaged

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with the housing (33) and a second portion (41) engageable with the body of a torque tool (101) to secure the housing against rotation with respect to said body. Shomo however failed to teach the torque tool is a power torque tool. In the same field of endeavor, Schoeps teaches (in Fig. 1) a second portion (right side of 23 attached to tool 12) engageable with the body of a power torque tool (12) to secure the housing against rotation with respect to said body. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Schoeps with that of Shomo for using of torque adapter with not only manual wrench but also power tool.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shomo (US 6196071, IDS) in view of Schoeps (US 6134973), and in further view of Cherniak (US 3162795).

As for claim 5, Shomo and Schoeps teach the claimed invention as applied to claim 4 above. References however failed to teach said member comprises a helical spring. In the same field of endeavor, Cherniak teaches (in Fig. 1) member (12) comprises a helical spring (36, 37). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Cherniak with those of Shomo and Schoeps for a restoring torque to balance the input torque. (col. 1, line 16-38)

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10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shomo (US 6196071, IDS).

As for claim 7, Shomo teaches the claimed invention as applied to claim 6 above. Shomo however failed to teach said magnetic field sensor arrangement further comprises a circuit into which the at least one magnetic field sensor device is connected, the circuit and the at least one magnetic field sensor device being supported by said housing, the circuit being operable to output signals representing torque through the means for communicating. However, it is notoriously old and well known in the art to use Hall effect IC instead of Hall effect sensor element and output circuitry, and therefore the examiner hereby takes official notice regarding use of circuit for sensor output. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made for compactness of the sensing unit by using embedded IC.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shomo (US 6196071, IDS) in view of Herbold (US 2004/0007082).

As for claim 9, Shomo teaches the claimed invention as applied to claim 7 above. Shomo however failed to teach the means for communication utilizes a wire-less (free of wire connection) form of communication. In the same field of endeavor, Herbold teaches (in Fig. 3) a means for communication (72) utilizes a wire-less (free of wire connection) form of communication. Therefore, it would have been obvious to a person

of ordinary skill in the art at the time the invention was made to combine the teaching of Herbold with that of Shomo for wireless communication.

12. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shomo (US 6196071, IDS) in view of Schoeps (US 6134973) and in further view of Kawagoe et al (US 5515736).

As for claim 22, Shomo teaches (in Figs. 1-3) a torque transducer assembly (31) comprising; a housing (33, 65) having an opening (43) therethrough; a torque transmission shaft (45) disposed in said housing (65) for rotation about an axis extending through said opening (43), said shaft (45) having a first portion supported in an annular bush (67) secured to the housing (65) and from which first portion (33) and output portion (65) of the shaft projects (45), said first portion (65) having a torque transducer element (51) integral therewith, or carried thereby, to emanate a magnetic field dependent on the torque in the shaft (45), a magnetic field sensor (61) arrangement embedded in said bush (67) adjacent said element (51) for providing a torque- dependent signal, said shaft (45) having a second portion distal said output portion and at least partially contained within said opening, Shomo however failed to teach said second portion being of larger cross-section than said first portion and abutting said bush; first means for locating said second portion to rotate with respect to said housing, and a second means for applying axial force between the housing and said second portion to maintain same in abutment. In the same field of endeavor, Schoeps teaches (in Fig. 1) said second portion (right side of 23 connected to 12) being

of larger cross-section then said first portion (left side of 23 housing 22) and abutting said bush (part above 25 and bearing); first means (bearings) for locating said second portion to rotate with respect to said housing (25). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Schoeps with that of Shomo for coupling of adaptor with tool.

Schoeps however failed to teach a second means for applying axial force between the housing and said second portion to maintain same in abutment. In the same field of endeavor, Kawagoe teaches (in Fig. 1) a second means (22) for applying axial force between the housing and said second portion to maintain same in abutment. (col. 4, line 53-55) Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Kawagoe with those of Shomo and Schoeps to maintain the upward position by applying preload.

13. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shomo (US 6196071, IDS) in view of Schoeps (US 6134973) and Kawagoe et al (US 5515736) as modified in claim 22 above, and in further view of Morioka (US 5459361).

As for claim 23, Shomo, Schoeps and Kawagoe teach the claimed invention as applied to claim 22 above. Schoeps further teaches (in Fig. 1) first means (bearings) comprises a bushing located in a circumferential around said second portion and engaging a surface of said opening. Schoeps however failed to teach a bushing located in a circumferential groove around said second portion and engaging an inner surface of said opening. In the same field of endeavor, Morioka teaches (in Fig. 1) bushing (15) is

located in inside of opening (14). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Morioka with those of Shomo, Schoeps and Kawagoe to reduce the diameter of the adapter portion by placing bushing inside of the transducer instead of outside.

14. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shomo (US 6196071, IDS) in view of Schoeps (US 6134973), Kawagoe et al (US 5515736) and Morioka (US 5459361) as modified in claim 23 above, and in further view of Wrobel et al (US 4613778).

As for claim 24, Shomo, Schoeps, Kawagoe and Morioka teach the claimed invention as applied to claim 23 above. References however failed to teach said second means comprises a retainer ring secured in said opening to apply an axial force to said bushing. In the same field of endeavor, Wrobel teaches (in Fig. 1) a second means (spring 5) comprises a retainer ring (6) secured in opening to apply an axial force to a plate brushing (4). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Wrobel with those of Shomo, Schoeps, Kawagoe for positioning of spring to maintain the preload.

15. Claim 7 is alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Shomo (US 6196071, IDS) in view of Goossens (US 5585560).

As for claim 7, Shomo teaches the claimed invention as applied to claim 6 above. Shomo however failed to teach said magnetic field sensor arrangement further comprises a circuit into which the at least one magnetic field sensor device is connected, the circuit and the at least one magnetic field sensor device being supported by said housing, the circuit being operable to output signals representing torque through the means for communicating. In the same field of endeavor, Goossens teaches (in Figs. 2-3) magnetic field sensor arrangement further comprises a circuit (8) into which the at least one magnetic field sensor device (1) is connected, the circuit (8) and the at least one magnetic field sensor device (1) being supported by said housing (6), the circuit being operable to output signals representing torque through the means for communicating (5). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Goossens with that of Shomo for compactness of the sensing unit by using embedded IC.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN K. KIM whose telephone number is (571)270-5072. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-270-6072.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tran Nguyen/
Primary Examiner, Art Unit 2834

JK